Brian Smiley

914-584-9539 • briantsmiley42@gmail.com

Education

Columbia University
BA, Astrophysics — May 2016

Coursera
Nand2Tetris, Parts 1 & 2 — October 2021

- Built a virtual computer from the logic gate level, including operating system, Java-like language/compiler, and final project

Proficiencies

Machining General metalworking (e.g. mill, lathe, bandsaw, circular saw, drill press), laser cutter**,** 3D printers, waterjet
Software Solidworks, Python
Language French

Employment & Experience

Arch Laboratories, New York, NY — April 2023-Present
Data Operations Analyst - Part Time

- Processed activity updates for clients' alternative investments in Arch's proprietary portal

Schiminovich Astronomy & Instrumentation Laboratory, New York, NY — December 2016-June 2022
Lab Assistant: PI, Professor David Schiminovich, PhD

- Designed parts and assemblies of structural and optical components for Circumgalactic Hydrogen-Alpha Spectrograph (CHaS) in Solidworks, including original hardware designs and finite element analysis simulations
- Manufactured parts in Columbia University machine shop/Maker Space
- Interfaced with vendors and machine shops to purchase components and manufacture custom parts
- Assembled CHaS instrument components and assisted in engineering runs at Kitt Peak National Observatory

Dotdash Meredith — September 2022-Present
Data Specialist - Part Time

- Performed manual data collection and implemented automated processes for data parsing which sped up tasks by ~10x

Columbia University Astrophysics, New York, NY — Summer 2012-Spring 2016
Lab Assistant: PI, Assistant Professor Bradley Johnson, PhD

- Designed parts and assemblies for cosmic microwave background (CMB) polarimetry experiments using Solidworks
- Operated cryostat hardware, including vacuum pumps and cryocoolers for testing experimental detectors
- Created schematic drawings for part manufacture, and interpreted others' drawings for reverse engineered digital mockups
- Designed, assembled, and operated experimental cryostat chamber for testing a superconducting magnetic bearing

NASA Micro-g NExT Challenge — Spring 2016
Lead Designer, Columbia Space Initiative: Advisor - Former Astronaut, Professor Michael Massimino, PhD

- Designed, built, and tested original asteroid anchor prototype tool for astronaut extravehicular activity (EVA)
- Acted as lead Solidworks designer, and fabricated parts using machine shop and 3D printer
- Presented and tested tool at NASA's Neutral Buoyancy Lab at Johnson Space Center
- Tool outperformed all other teams in category, with 30 lbs of anchoring strength

Let's Get Ready! Summer SAT Course, White Plains, NY — Summers 2011, 2012
Volunteer Tutor

- Prepared lessons in SAT-level Math and English for underprivileged high school students

- Instructed classes of 6-12 students in 3 hour sessions twice a week

National History Bee & Bowl (NHBB) June 2010-April 2016

Assistant Director

- Helped found and establish the NHBB organization during its inaugural year (2010-2011)
- Directed and staffed numerous high school quizbowl tournaments including yearly national finals, managing staff, students, and event logistics

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Publications

Melso, N., Schiminovich, D., Smiley, B., Ong, H., Cevallos Aleman, I., and Stelea, I., "*The Circumgalactic H-alpha Spectrograph: First Light Observations and Data Analysis of Early Science Targets Featuring NGC 4631*", vol. 53, no. 1, 2021.

Melso, N., Schiminovich, D., Smiley, B., Ong, H., Santiago, B., Sitaram, "*Design and commissioning of the Circumgalactic H-alpha Spectrograph*," Proc. SPIE 11447, Ground-based and Airborne Instrumentation for Astronomy VIII, 114470B (13 December 2020); https://doi.org/10.1117/12.2561674

Hamden, Erika T., et al. "*FIREBall-2: advancing TRL while doing proof-of-concept astrophysics on a suborbital platform.*" Micro-and Nanotechnology Sensors, Systems, and Applications XI. Vol. 10982. International Society for Optics and Photonics, 2019.

Johnson, B. R., Columbro, F., Araujo, D., Limon, M., Smiley, B., Jones, G., ... & Gupta, S. (2017). *"A large-diameter hollow-shaft cryogenic motor based on a superconducting magnetic bearing for millimeter-wave polarimetry."* Review of Scientific Instruments, 88(10), 105102.

B. R. Johnson, P. A. R. Ade, D. Araujo, K. J. Bradford, D. Chapman, P. K. Day, J. Didier, S. Doyle, H. K. Eriksen, D. Flanigan, C. Groppi, S. Hillbrand, G. Jones, M. Limon, P. Mauskopf, H. McCarrick, A. Miller, T. Mroczkowski, B. Reichborn-Kjennerud, B. Smiley, J. Sobrin, I. K. Wehus: "*The Detector System for the Stratospheric Kinetic Inductance Polarimeter (SKIP)*", 2013, Journal of Low Temperature Physics: Volume 176, Issue 5 (2014), Page 741-748; arXiv:1308.0235. DOI: 10.1007/s10909-013-1014-3.

D. C. Araujo, P. A. R. Ade, J. R. Bond, K. J. Bradford, D. Chapman, G. Che, P. K. Day, J. Didier, S. Doyle, H. K. Eriksen, D. Flanigan, C. E. Groppi, S. N. Hillbrand, B. R. Johnson, G. Jones, M. Limon, A. D. Miller, P. Mauskopf, H. McCarrick, T. Mroczkowski, B. Reichborn-Kjennerud, B. Smiley, J. Sobrin, I. K. Wehus: "*A LEKID-based CMB instrument design for large-scale observations in Greenland*", 2014, Proc. SPIE. 9153, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII, 91530W. (August 19, 2014); arXiv:1407.6249. DOI: 10.1117/12.2056828.

Sean Bryan, Kristi Bradford, George Che, Peter Day, Daniel Flanigan, Bradley R. Johnson, Glenn Jones, Bjorn Kjellstrand, Michele Limon, Philip Mauskopf, Heather McCarrick, Amber Miller, Brian Smiley: "*Design of Dual-Polarization Horn-Coupled Kinetic Inductance Detectors for Cosmic Microwave Background Polarimetry*", In 26th International Symposium on Space Teraherz Technology, ISSTT 2015;arXiv:1503.04684.